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09/660,187	09/12/2000	Masaaki Ito	05905.0125	6735

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EXAMINER

WANG, JIN CHENG

ART UNIT	PAPER NUMBER
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2672

DATE MAILED: 06/25/2004

65

Please find below and/or attached an Office communication concerning this application or proceeding.

14

Office Action Summary

Application No.

09/660,187

Applicant(s)

ITO, MASAOKI

Examiner

Jin-Cheng Wang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 May 2004.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 6-12 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1 and 6-12 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

The amendment filed on 5/19/2004 has been entered. Claims 1, 9-12 have been amended. Claims 1, and 6-12 are pending in the application.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1, 6-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. U.S. Patent No. 5,755,620 (hereinafter Yamamoto); in view of Inoue et al. U.S. Pat. No. 6,217,445 (hereinafter Inoue) and Oka et al. U.S. Patent No. 6,141,025 (hereinafter Oka).

3. Claims 1, 7-8:

(a) Yamamoto teaches a game device which reads from a storage means, prior to image processing, background data required in games for displaying a moving object within a virtual three-dimensional space together with a background, comprising:

Pre-reading means for pre-reading said background data from said storage means by establishing an area for pre-reading which includes: setting a predetermined angle-of-visibility based on a direction of the moving object (figures 15, 21 and 24), setting a limit-line of a visual

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field at a predetermined distance towards a front of the visual field, and setting a pre-reading start line at a predetermined distance beyond a front of the limit-line of the visual field (column 10; 13-16);

Wherein said storage means stores said background data by dividing said background data into a plurality of areas in advance (column 13-16);

Said pre-reading means comprising judging means for judging on which of said areas said pre-reading line is crossing, and reading means for reading the background data of the area judged as being crossed with said pre-reading line by this judging means (column 13-16);

Wherein said plurality of areas are respectively stored in said storage means by dividing the content of background data per type (column 13-16);

Said game device further comprising a work memory including a plurality of memory blocks each set at a same memory capacity (Yamamoto discloses a game device wherein plurality of areas AR_n are respectively stored in storage means by dividing the background data into a plurality of blocks that correspond to areas AR_n. Yamamoto has also taught reading means for reading in polygon data of AR_n into memory blocks in accordance with the upper limit of polygons; column 13-16);

Wherein said reading means includes means for storing the background data of the crossed area in an integral number “n” of said memory blocks in said work memory in accordance with the amount of the background data to be stored (column 13-16);

- Note that the claim limitation recites the “limit-line” and “start line” that are not specifically determined throughout the Applicant’s specification. In light of

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Applicant's specification (see Applicant's specification, page 12, paragraph 2 and 3, page 12, paragraph 1 and 2), the additional claimed limitation is interpreted as merely a pre-reading means of pre-loading memory blocks of the stored background data into a working memory space. As in the rejection of claim 1, Yamamoto has taught the claimed limitation of pre-reading means of pre-loading memory blocks of the stored background data into a working memory space. The reasons are given next.

- Yamamoto teaches a game system comprising ROM 11 receiving from a storage means prior to image processing background data for displaying a moving object in three-dimensional virtual space (column 5-6). Yamamoto also teaches a game device with pre-reading means for pre-reading background data from storage means and transferred the pertinent number of polygon data to the block area of the work memory accordance to the vehicle position (e.g., column 5-6, 13-16).
- The examiner asserts Yamamoto teaches a pre-reading means for pre-storing background data *in advance* into ROM or RAM, e.g., for the car race game.

Yamamoto teaches car race course (figure 21) with the background data constructed *in advance* as display data and the polygon data is fetched from ROM for displaying as required by a scene *accompanying the movement of a movable object in accordance with the development of the game.*" Yamamoto sets up a limit line for the number of polygons to be read into the work memory. The examiner interprets this teaching as storing the display data in a work memory space in advance that accompanies the movement of a high-speed moving object such as a racing car.

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- In figures 21, Yamamoto further teaches setting a predetermined angle-of-visibility based on a direction of the moving object. Yamamoto also teaches that the polygonal data of pertinent blocks are read in advance from ROM to the work memory (column 5-6).
- Yamamoto teaches that pre-storing the number of polygons in ROM in advance. Yamamoto has also taught reading means for reading in polygon data of ARn into memory blocks in accordance with *a user-changeable upper limit* of polygons. Therefore, Yamamoto teaches setting a *limit-line* of a visual field at a predetermined distance towards a front of the visual field, and setting a *pre-reading start line* at a predetermined distance towards the front of the limit-line of the visual field.
- As applied to the present application, Yamamoto fulfills the claimed limitation of setting a limit-line of a visual field at a predetermined distance towards a front of the visual field, and setting a pre-reading start line at a predetermined distance towards the front of the limit-line of the visual field.

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(b) However, Yamamoto is silent to counting means and therefore Yamamoto lacks a full disclosure of the claimed limitation that “said game device further comprising counting means for detecting whether said moving object exists within said areas corresponding to memory blocks storing background data, or an area that exists within the visual field, in said work memory, and counting said moving object or visual field area periodically, wherein said reading means includes means for determining the memory block to store said background data

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based on a count value determined for each of said memory blocks by said counting means when it is judged that there is no vacant space in said work memory”.

Yamamoto is also silent to *means for judging whether one or more of said memory blocks of said work memory are vacant space or not* and therefore lacks a full disclosure of the claim limitation that said reading means includes *means for judging whether one or more of said memory blocks of said work memory are vacant space or not*, and means for successively storing the background data of said crossed area in said integral number n of said memory blocks when said integral number of said memory blocks are judged as vacant space and of sufficient capacity to store the background data.

(c) Inoue and Oka teaches a game device comprising counting means for detecting whether said moving object exists within said areas corresponding to memory blocks storing background data (e.g., Inoue column 11, lines 49-67; column 12, lines 1-16), or an area that exists within the visual field (Inoue column 14, lines 5-40), in said work memory, and counting said moving object or visual field area periodically (e.g., Inoue column 11, lines 49-67; column 12, lines 1-16), wherein said reading means includes means for determining the memory block to store said background data based on a count value determined for each of said memory blocks by said counting means when it is judged that there is no vacant space in said work memory (e.g., Inoue column 11, lines 49-67; column 12, lines 1-16; Oka column 5, lines 40-67; Oka column 6, lines 1-40; Oka column 7, lines 3-40; Oka column 8, lines 20-65; column 10, lines 5-65).

Oka teaches the claim limitation that said reading means includes *means for judging whether one or more of said memory blocks of said work memory are vacant space or not*, and means for successively storing the background data of said crossed area in said integral number n

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of said memory blocks when said integral number of said memory blocks are judged as vacant space and of sufficient capacity to store the background data (Oka column 7 and 8. Oka discloses that display data contained in the texture cache is divided into a plurality of blocks such as texture addresses tagged by a flag which specifies the usage status of the texture block).

(d) It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a counting means of Inoue/Oka and the judging means of the usage status of the memory blocks in the Yamamoto's game system because such a construction would have provided a means for judging the usage status of memory blocks.

(e) Such modification would have been required for determining the usage status of the memory blocks as suggested by Yamamoto by implicitly disclosing a working memory such as RAM 103 functioning as a buffer memory for the geometerizer 110 (e.g., column 5-6) thereby suggesting the obvious modification.

(f) One having the ordinary skill in the art would be motivated to do this because determining the usage numbers of the memory blocks would allow a selection of certain memory blocks to be used when the car or a moving object is moving in different area numbers (Yamamoto figure 21).

(g) The claim 7-8 encompasses the same scope of invention as that of claim 1 except additional claimed limitation of counting means for memory blocks in a variety of forms. As noted above, Yamamoto discloses a game device for processing background data and displaying a moving object in three-dimensional virtual space (column 5-6). Yamamoto has taught judging means for determining (judging) which area ARn the vehicle is crossing and texture transfer should be performed in accordance to the position of the vehicle (Yamamoto column 13-16) and

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reading means for reading in texture memory the background data of the area determined (judged) as being crossed with by the determining (judging) means in accordance to the vehicle position (see for example, Yamamoto column 13-16).

Claim 6:

Yamamoto has taught a game device wherein reading means includes determining means for determining a plurality of memory blocks when background data to be stored requires a plurality of memory blocks (Yamamoto column 13-16).

Claim 9:

Yamamoto has taught a game device wherein moving object such as a vehicle moves within three-dimensional virtual space (Yamamoto column 5).

Claim 10:

Yamamoto has taught a sudden change of direction of travel (figures 15, 21) and processing means for enabling the detection of the direction of movement and amount of movement of a movable object. Yamamoto has also taught a game device wherein background data is landform data because the first texture is a picture of a moving road surface when a movable object is in a traveling state (figure 1-5; column 13-16).

4. Claim 11:

The claim 11 is a rephrasing of claim 1 in a method form. Therefore, the claim 11 is rejected for the same reason set forth in the claim 1.

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Claim 12:

The claim 12 encompasses the same scope of the invention as that of the claim 11 except additional claimed limitation of an information recording medium. Yamamoto has taught an information recording medium such as a ROM (column 5-6).

Remarks

5. Applicant's arguments, filed 05/19/2004, paper number 14, have been fully considered but they are not deemed to be persuasive.
6. Applicant argues in essence with respect to the amended claim 1 and similar claims that:
(A) "Inoue discloses counting the number of vehicles...Inoue, however, does not disclose or suggest at least 'said game device further comprising counting means for detecting whether said moving object exists within said areas corresponding to memory blocks storing background data, or an area that exists within the visual field, in said work memory, and counting said moving object or visual field area periodically,' as recited in claim 1."

In response to the arguments in (A), as set forth in the Office Action, the Examiner has only relied on Inoue to teach the claimed limitation that "counting means" rather than other claim limitations mentioned in the arguments. It is apparent that Inoue and Oka teaches a game device comprising counting means for detecting whether said moving object exists within said areas corresponding to memory blocks storing background data (e.g., Inoue column 11, lines 49-

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67; column 12, lines 1-16), or an area that exists within the visual field (Inoue column 14, lines 5-40), in said work memory, and counting said moving object or visual field area periodically (e.g., Inoue column 11, lines 49-67; column 12, lines 1-16; Oka column 5, lines 40-67; Oka column 6, lines 1-40; Oka column 7, lines 3-40; Oka column 8, lines 20-65; column 10, lines 5-65).

7. Applicant argues in essence with respect to the amended claim 1 and similar claims that:
- (B) “Oka discloses storing data in a first-in-first-out (FIFO) memory that is provided between a frame buffer and a graphic engine separated from a cache memory. Content is pre-read from the FIFO memory and data is read from the same page in the frame buffer (DRAM) so that access between the cache memory and the DRAM becomes more efficient and content can be drawn with greater speed. See Abstract. However, Oka does not disclose or suggest at least ‘said game device further comprising counting means for detecting whether said moving object exists within said areas corresponding to memory blocks storing background data, or an area that exists within the visual field, in said work memory, and counting said moving object or visual field area periodically,’ as recited in claim 1.”

In response to the arguments in (B), as set forth in the Office Action, the Examiner has only relied on Oka to teach the claimed limitation that “means for judging whether one or more of said memory blocks of said work memory are vacant space or not” rather than other claim limitations mentioned in the arguments. It is apparent that Oka teaches the claim limitation that said reading means includes means for judging whether one or more of said memory blocks of

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said work memory are vacant space or not. Oka clearly teaches in column 7 and 8 that display data contained in the texture cache is divided into a plurality of blocks such as texture addresses tagged by a flag which specifies the usage status of the texture block).

8. Applicant argues in essence with respect to the amended claim 1 and similar claims that:
(C) "...However, Inoue and Oka do not make up for the deficiencies of Yamamoto."

In response to the arguments in (C), the Examiner asserts that Yamamoto in combination with Inoue and Oka fulfills the claim limitations as recited in the claim 1. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have incorporated a counting means of Inoue and/or Oka and the judging means of the usage status of the memory blocks in the Yamamoto's game system because such a construction would have provided a means for judging the usage status of memory blocks. Such modification would have been required for determining the usage status of the memory blocks as suggested by Yamamoto by implicitly disclosing a working memory such as RAM 103 functioning as a buffer memory for the geometrizer 110 (e.g., column 5-6) thereby suggesting the obvious modification. One having the ordinary skill in the art would be motivated to do this because determining the usage numbers of the memory blocks would allow a selection of certain memory blocks to be used when the car or a moving object is moving in different area numbers (Yamamoto figure 21).

Conclusion

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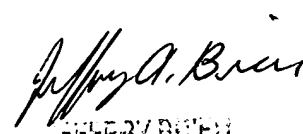
9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jin-Cheng Wang whose telephone number is (703) 605-1213. The examiner can normally be reached on 8:00 AM - 4:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Razavi can be reached on (703) 305-4713. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-6606 for regular communications and (703) 308-6606 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 395-3900.


JEFFERY BRIEN
PRIMARY EXAMINER

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jcw

June 3, 2004